COMMITTEE OF THE WHOLE

Room 104 – City Hall
October 27, 2003
4:15 P.M.

PAGE

1. Amateur Sports Commission Update / Ed Hruska

(1-3) 2. NW Pumping Station v. Tunneling Options (attachment)

Rochester Public Works

Memo

To: Stevan Kvenvold

From: Richard W. Freese

CC: Doug Nelson

Date: 10/24/2003

Re: Alternatives for Replacement of Sanitary Sewer Lift Station # 4

The existing sanitary sewer lift station # 4 (LS4) was constructed over 25 years ago along 50th Street NW approximately 1,650 east of 18th Avenue NW to serve the Kings Run Drainage Basin (Sewer Service Area 28). Due to the geologic constraint of very deep excavations required for a conventional gravity sewer posed by the significantly higher ground between PS4 and the Water Reclamation Plant (WRP), a sewer lift station was constructed to "lift and pump" the sewerage to a higher elevation for gravity sewer flow to the WRP. It was designed and constructed as a "temporary sewer lift station" and it was anticipated that the LS4 would be rebuilt at a later date as dictated by community growth, related increases in sewer flows, and diminished pump station capacity. Over the last 25 years the following events have occurred that now warrant the evaluation of alternatives for the replacement of LS4:

- The Urban Service Area (USA) boundary has been enlarged on three (3) separate occasions with the resulting sewer service area (SSA) increasing from 4,585 acres to 23,439 acres over the last 25 years.
- The existing lift station wet weather flows exceeded the pump station pumping capacity in June 2002.
- The existing lift station pumping capacity exceeds the downstream gravity sewer capacity during wet weather events.
- Residential subdivisions have been constructed both the north and south of the existing LS4 and resultant noise and odor complaints have increased.

Over the past 18 months Public Works staff have worked with our engineering consultant team of H.R. Green and CH2MHill to identify, evaluate, and cost various alternatives for replacement of the existing LS4. Since the time that the "temporary" LS4 was planned and constructed the conventional thinking was to construct a new lift station further to the east somewhere along the Zumbro River in the vicinity of intersection of 55th Street NW and West River Road. The thought here was that it may be possible to not only serve the Kings Run area west of the river, but also serve the Hadley Valley area east of the river with a single sewer lift station.

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Our project objective is to provide an systematic approach to identifying, selecting, and constructing efficient and cost-effective public sanitary sewer facilities to serve the developing areas in the Kings Run, Northwest Territories, and Hadley Valley. To that extent, we have completed the following work tasks and want to present this information to the City Council for their consideration.

- Defined the ultimate sewer service area, sewerage conveyance and pumping needs for the areas to be served
- Evaluated staging of construction to minimize capital costs and maximize economies of scale associated with a 25-year development scenario
- Used the land use and growth projections established by the Rochester Olmsted Planning Department for calculating sewer flows from the sewer service areas
- Defined five alternatives for replacement of the existing LS4
    - Interim Improvements to existing LS4 and downstream forcemain and gravity sewer
    - West Side Lift Station designed to accept and pump flows from East side of river
    - East Side Lift Station designed to accept and pump flows from West side of river
    - West Side Lift Station and East Side Gravity Sewer
    - Gravity sewer for both the west and east sides of river
- Developed preliminary project cost estimates, life cycle cost comparisons, and schedules for five (5) alternatives
- Identified environmental issues associated with the five (5) alternatives
- Conducted geotechnical investigations for the alternatives

Dave Raby from H.R. Green and David Abbott, an underground tunnel construction consultant retain by HR Green, will be presenting more detailed information on the five alternatives at the October 27, 2003 Committee of the Whole Meeting. The presentation will follow the attached Agenda.

The City's consultant team and the Public Works staff will be recommending the City Council authorize us to proceed with the design of a gravity sewer project utilizing, in part, micro-tunneling technology to serve the entire 16,000 acres in the Kings Run and Northwest Territories sewer service areas and a gravity sewer project utilizing, in part, micro-tunneling technology to serve the entire 7,000 acres in the Hadley Valley sewer service area.

We intend on providing the City Council sufficient information at the Committee of the Whole Meeting such that they can make an informed decision on this matter such that we can direct the project consultant to move forward with the final project design such that we can begin construction next summer.

City of Rochester
Outline of City Council Presentation
10/27/2003

I. Introductions

a. Dave Raby/Howard R. Green Co.
b. Kim Erickson/CH2M HILL
c. David Abbott/International Construction Services

II. Need for the Project

a. Lift Station No. 4
    i. Location/Condition
    ii. Capacity
b. Anticipated Service Area/Growth
    i. Kings Run
    ii. NW Territory
    iii. Hadley Valley

III. Options to Provide Service

a. Replace/Relocate LS No. 4
    i. East Side of Zumbro River
    ii. West Side of Zumbro River
    iii. West Side of Zumbro River (to serve west side) and gravity connection to serve Hadley Valley
b. All Gravity

IV. Geotechnical Investigations

a. Lift Station Options Site Investigations
b. All Gravity Option Site Investigations

V. Comparative Analysis

a. Cost Comparison
b. Non-Monetary Comparison
c. Recommended Option Concepts
    i. Tunnel Options Evaluated
    ii. Microtunneling Recommendation
    iii. Risks/Mitigation

VI. Next Steps

a. Phase II Project Description
b. Authorization of City Staff to Proceed
c. Implementation Schedule